



E685

JACC March 27, 2012

Volume 59, Issue 13



Arrhythmias

INTERACTION AMONG DIGOXIN USE, KIDNEY FUNCTION, AND MORTALITY IN PATIENTS WITH ATRIAL FIBRILLATION: THE TREAT-AF STUDY

ACC Moderated Poster Contributions

McCormick Place South, Hall A

Monday, March 26, 2012, 11:00 a.m.-Noon

Session Title: Arrhythmias: AF/SVT: Continuing Role of Pharmacologic Therapy for Atrial Arrhythmias

Abstract Category: 16. Arrhythmias: AF/SVT

Presentation Number: 1238-261

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Background: Prior studies have shown that digoxin use is associated with increased mortality. We investigated whether the association between digoxin and mortality varies by kidney function.

Methods: The Retrospective Evaluation and Assessment of Therapies in AF (TREAT-AF) study is a retrospective cohort study of patients with incident AF treated in the Veterans Health Administration. National inpatient, outpatient, and fee basis claims data were used to identify patients with newly diagnosed non-valvular atrial fibrillation or atrial flutter between 10/1/04 - 9/30/08 that were seen in outpatient clinics within 90 days of AF. Estimated GFR was calculated by the CKD-EPI formula using the serum creatinine closest to the index date of AF, from 365 days before to 90 days after diagnosis of AF. CKD stage was based on GFR and outpatient dialysis claims. Medication use was identified from drug prescriptions data from 0 to 90 days after AF diagnosis. We performed multivariate Cox regression to estimate the association of digoxin use with time to death, stratified by CKD stage, over a median follow-up of 2.9 years.

Results: Among 126,162 patients with newly diagnosed AF, the mean (SD) age was 72 (± 10) years; 1.6% were women. Compared with CKD Stage I patients, patients with severe kidney dysfunction (Stage IV, V, V-Dialysis) were older, had a higher prevalence of HF, DM, prior stroke/TIA, CHADS₂ ≥ 2 , and higher Charlson comorbidity scores. The overall prevalence of digoxin use was 23.5% and decreased with lower kidney function. After adjustment for age, sex, race, HTN, HF, DM, CHADS₂ score, Charlson comorbidity score, CKD stage, use of amiodarone, BBs, diuretics, antiplatelet agents, warfarin, statins, and ACEI/ARB, use of digoxin was associated with 13% increased mortality (HR 1.13, $p < 0.0001$). The association was present across all strata of CKD stage, but increased sharply among patients on dialysis (HR Stage I-1.30, II-1.12, IIIA-1.17, IIIB-1.15, IV-1.13, V-1.17, V-Dialysis-1.71, $p < 0.0001$ for interaction).

Conclusion: In patients with newly diagnosed AF, use of digoxin is independently associated with mortality, however, its association with death rises sharply among patients on dialysis.